Meridian 1 and Succession Communication Server for Enterprise 1000

# Message Registration

Description and Operation

Document Number: 553-2701-101
Document Release: Standard 5.00
Date: January 2002

Copyright © 1990–2002 Nortel Networks
All Rights Reserved

Printed in Canada

Information is subject to change without notice. Nortel Networks reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant. This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules, and the radio interference regulations of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

SL-1, Meridian 1, and Succession are trademarks of Nortel Networks.

# Revision history

**January 2002**

Standard 5.00. This document is up-issued to include content changes for Meridian 1 Release 25.40 and Succession Communication Server for Enterprise 1000 systems.

**April 2000**

Standard 4.00. This is a global document and is up-issued for X11 Release 25.0x. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

**December 1994**

Standard, release 3.00. Reissued to include editorial changes and indexing. Due to the extent of the changes, revision bars are not used.

**December 1991**

Standard, release 2.00. This document reissued to include technical content updates. Due to the extent of the changes, revision bars are not used.

**August 1990**

Standard, release 1.00. Reissued for compliance with Nortel Networks standard 164.0.

# Contents

About this document . . . . . 7

Description . . . . . 9

Operation . . . . . 15

Index . . . . . 21

# About this document

This document applies to Meridian 1 Internet Enabled and Succession Communication Server for Enterprise (CSE) 1000 systems.

This document is a global document. Contact your system supplier or your Nortel Networks representative to verify that the hardware and software described is supported in your area.

This document provides description and configuration information for Message Registration (MR).

## Who should use this document

This document is intended for individuals responsible for Message Registration (MR) administration

# Description

## Contents

This section contains information on the following topics:

Reference list . . . . . 9
Operating parameters . . . . . 11
Feature interactions . . . . . 12
Multiple Appearance Directory Numbers . . . . . 12
Call Transfer . . . . . 12
Call Forward . . . . . 12
Conference . . . . . 12
Trunk-to-trunk calls . . . . . 12
Attendants . . . . . 12
Feature packaging . . . . . 12
Feature implementation . . . . . 13
Feature operation . . . . . 13
Hardware description . . . . . 13
Trunk circuit cards . . . . . 13
Reverse Battery operation . . . . . 14

## Reference list

The following are the references in this section:

- *Circuit Card: Installation and Testing* (553-3001-211)

Message Registration (MR) is an optional software package that meters local calls over designated central office (CO) trunks. The Message Registration (MR) feature counts Reverse Battery (RVB) pulses from outgoing loop start or ground start CO trunks. Pulses received are stored in software meters. Each meter is assigned to a Directory Number (DN) or trunk access code that requires metering.

The Message Registration feature allows each customer within the system to keep an accurate record of CO calls for billing and administration purposes.

- Each Directory Number (DN) of three or more digits, including the attendant DN, can be assigned a software meter. For multiple appearance DNs, only one meter is assigned to meter all calls to the Prime DN (PDN). Stations with multiple DN keys have a meter allocated for each DN key.
- Meters can also be assigned to tie trunk routes. A tie route meter can be assigned to the route access code of each tie route in the customer group. An access code for a metered route must be at least three digits long.
- The system automatically assigns one customer meter for each customer within the system. This customer meter is used to store pulses that cannot be added to particular DN or trunk meters assigned in the customer group.

Software meters are assigned in LDs 10 and 11. Each meter number corresponds to the DN or trunk access code to which it is assigned. Meters can be either ON or OFF. When a meter is turned off, pulses received are not stored. The customer meter is always on and cannot be turned off. Meters can also be turned on or off individually or in groups, using a background terminal (BGD).

Each software meter can store up to 32,766 pulse counts before automatically resetting to 0. When a meter is reset, a message is printed on the system maintenance terminal, the BGD, or both, indicating that a reset occurred. Overflow messages display information on meter contents for any DN or trunk access code requested:

- Station or trunk TN
- Station DN or the trunk-access code
- Trunk TN (outgoing CO trunk used for the call)

- Customer number for their station or trunk
- Meter count before reset (32766)

The message for a customer meter overflow appears as follows:

CUST MTR xx OVF 32766

When equipped with the MR feature, the system is capable of the following provisions:

- Attendants are able to meter outgoing local calls over CO routes.
- Meter contents are accessible from digital telephones equipped with digit display and a Message Registration key/lamp pair.
- Meter contents are also accessible from BGDs.

The system uses class of service (COS) to distinguish between room phones and administrative phones. Room phones have Controlled COS Allowed (CCSA), while administrative phones have Controlled COS Denied (CCSD). Call charges and meter data provided to the attendants appear on the BGD and are classified into five categories:

| | |
|---|---|
| ROOM | guest room DN (CCSA) |
| ADMN | administrative phones (CCSD) |
| ATTN | attendant consoles |
| TRK | outgoing CO trunks |
| CUST | customer DNs |

## Operating parameters

The MR package must be supported by a BGD with Controlled Class of Service Allowed (CCSA). The feature is not supported by attendant administration.

MR is mutually exclusive with Coordinated Dialing Plans (CDPs), and Centralized Attendant Services (CAS).

One-digit or two-digit DNs or access codes cannot be metered.

# Feature interactions

### Multiple Appearance Directory Numbers

Multiple Appearance DNs are charged on the meter assigned to the Prime DN (PDN). Data calls are charged to the originating telephone. Maintenance tests on metered trunks do not affect the metered values.

### Call Transfer

Only the party originating the Call Transfer is metered.

### Call Forward

On calls where the Call Forward feature is used, the last party to forward the call is metered. This applies to cases where a CO call originates from a Call Forward station, and to cases where an established CO call is transferred to a station that is forwarded to another internal station.

### Conference

Only the party originating the Conference Call is metered.

### Trunk-to-trunk calls

Metering of trunk-to-trunk calls using an outgoing CO trunk is not supported if the trunk access code is a one-digit or two-digit access code. Otherwise, a meter corresponding to the trunk access code of the metered trunk route is incremented. Only three-digit and four-digit codes are supported for DNs or trunk access codes.

### Attendants

For attendant-originated calls to CO trunks, the attendant meter is incremented. When the call is extended, the attendant is metered until a telephone within the Meridian 1 is added to the conference. When the attendant uses a loop key, the call is metered to the Room DN connected through that key; otherwise, the attendant meter is incremented.

# Feature packaging

This feature is included in base System Software.

## Feature implementation

Each CO route must be declared as metered or nonmetered in LD16, trunk route data block. Calls should not be allowed to overflow from metered to nonmetered routes.

A software meter must be assigned in the Customer Numbering Plan to each DN or trunk access code for which metering is desired.

## Feature operation

No specific operating procedures are required to use this feature.

## Hardware description

MR is supported on Options 51C, 61C, and 81C.

## Trunk circuit cards

One of the following trunk circuit cards must be used for trunks where metering is required.

- NT5D29AA
- NT5K18Ax
- NT5K82
- NTCK16Ax
- NTCK18
- QPC525
- QPC526

The choice of card depends on two factors: whether the trunks involved are loop or ground start, and whether system operation is A-law or μ-law.

Refer to *Circuit Card: Installation and Testing* (553-3001-211) for switch settings, connections and pad settings

# Reverse Battery operation

When the CO trunk returns a Reverse Battery (RVB) signal, only one pulse is received for each outgoing call. This pulse is passed to the software meter for storage. The meter is incremented once for each metered local call regardless of duration. Reversals received within 2 seconds of digit outpulsing completion are ignored.

# Operation

## Contents

This section contains information on the following topics:

Reference list . . . . . 15
Metering . . . . . 15
Background terminal command summary . . . . . 16
Setting room meters . . . . . 16
Selecting a single DN . . . . . 16
Selecting Multiple Appearance DNs . . . . . 18
Access to meters . . . . . 19

## Reference list

The following are the references in this section:

- *Background Terminal Facility: Description* (553-2311-316)

## Metering

Metering is applied on a route basis. When setting up a customer for the feature, CO routes that are to be metered should only have access to routes that are metered. Calls should not be allowed to overflow to a nonmetered route. The Background Terminal (BGD) and the Meridian digital telephones can show the accumulated number of calls for each DN meter assigned.

# Background terminal command summary

The following four MR options can be set from a BGD:

| | |
|---|---|
| AL1 | Value set for all Room DNs in the customer data block |
| X | Represents all possible values for a digit in a DN, so that nonsequential DN groups can all be set to the same value |
| RAnge | Sequential range of DNs can be set by entering the first and last DNs for the group |
| COnfirm | Response to the SEt command for verification |

For a complete and detailed description of all the BGD commands, refer to the *Background Terminal Facility: Description* (553-2311-316).

The general command format for the BGD appears as follows:

SEt OPtion <opt> ON
SEt OPtion <opt> OFF

<opt> = any combination of AL1, X, RA, and CO

All of the commands for the BGD/MR can be turned on or off with the following commands:

SEt OPtion ON
SEt OPtion OFF

MR commands are described in Table 2 on page 18. The following examples demonstrate some MR operations.

## Setting room meters

When setting room meters for a group of consecutive DNs, the second DN entered must be greater than the first DN entered. The value set for each meter must be between 0 and 32766. The confirm option must be set to get a response for input commands.

## Selecting a single DN

Enter the following command to set meter 1246 to a value of 9:

SE ME 1246 VA 9

If the global COnfirm command is switched on, the following response appears (if the meter had previously been switched off):

ME 1246 OFF TO 9

Enter the following command to set meter 1246 to a value of 0 (either ZEro or VAlue 0):

SE ME 1246 ZE or SE ME 1246 VA 0

Enter the following command to switch meter 1246 off:

SE ME 1246 OFF

Once a meter has been set, a series of command lines consisting of only DN and meter values can be entered as shown in Table 1 on page 17:

**Table 1**
**MR commands**

| Command Line | Typical Response |
|---|---|
| SE ME 1246 VA 10 | METER 1246 OFF TO 10 |
| 1248 | METER 1248 OFF TO 10 |
| 1257 20 | METER 1257 9 TO 20 |
| 1259 0 | METER 1259 64 TO ZERO |

This mode stays in effect until a nonnumeric entry is typed.

***Note:*** In a list, the number 0 is used, instead of ZE.

The customer meter can be accessed using similar commands, but it cannot be turned off as other meters can. CUstomer can be added to the end of a command accessing other meters, as shown in the following sample commands:

SE ME CU VA 9

(PR) ME CU

(PR) ME 1200 1205 CU

## Selecting Multiple Appearance DNs

Enter the following command to set meters 1240 to 1249 to a value 9 using the inclusive range (dn1 dn2) method:

SE ME 1240 1249 VA 9

Enter the following command to set meters 1240 to 1249 to a value of 9 using the "X substitution" method:

SE ME 124X VA 9

Enter the following command to set all meters to a value of 9:

SE ME AL VA 9

Table 2 on page 18 summarizes the MR set commands.

**Table 2**
**MR set commands**

| **Command line** | | | | | |
|---|---|---|---|---|---|
| (AU hhmm) | (PR) | MEter | dn | VAlue | nnnnn<br>(SEt command only) |
| | FInd | | dn1 dn2 | ZEro | |
| | SEt | | dnX | ON | |
| | "port ID" | | ALl | OFf | |
| | | | CUstomer | | |
| | | | | DIsplay | (ON) |
| | | | | | OFf |
| | | | | ALl | (see Note) |
| ***Note:*** In all conditions including zero; but not after SEt command. | | | | | |

# Access to meters

Meters are accessed from a standard data terminal (TTY) or a Display Telephone equipped with a Message Registration key/lamp pair. The TTY must be defined in the configuration record as a BGD. The BGD can be used exclusively for meter access to the two background features Automatic Wake Up (AWU) and room status information (RMS), or it can be shared with other functions:

- Erase the pulse count units stored on a meter.
- Change the pulse count units stored on a meter.
- Search for nonzero meters (TTY only).
- Read the pulse count units stored on a meter.
- Print the pulse count units stored on meters (TTY only).

***Note:*** Access to the customer's meter is allowed from the BGD only.

# Index


## A

access codes. *See* trunk access codes
administrative phones, 11
attendants, 12
AWU (Automatic Wake Up), 19

## B

BGD (background terminal)
- accessing meters, 19
- call charges and meter data, 11
- command summary, 16
- requirement, 11

## C

call charge categories, 11
Call Forward, 12
Call Transfer, 12
CAS (Centralized Attendant Services), 11
CDP (Coordinated Dialing Plan), 11
command summary
- BGD, 16
- MR set, 18

Conference Calls, 12
COS (class of service), 11
customer meter
- accessing, 19
- commands accessing, 17
- ON/OFF state, 10
- overflow message, 11

## D

DN (Directory Number)
- assigning meters to, 10
- selecting single, 16
- supported, 11

## F

feature implementation, 13
feature interactions, 12

## H

hardware supported, 13

## L

LD10 program, 10
LD11 program, 10
LD16 program, 13

## M

Meridian telephones, 15
messages
- overflow, 10
- reset, 10

meter data categories, 11
meters, software
- accessing, 19
- automatic reset, 10
- described, 10
- RVB operation, 14
- setting room, 16
- *See also* customer meter

MR (Message Registration)
described, 9
feature interactions, 12
operating parameters, 11
operation, 15
MR set commands, 18
Multiple Appearance DNs
metering, 12
selecting, 18

## O

operating parameters, 11
operation, 15

## P

pulses. *See* RVB (Reverse Battery) pulses

## R

RMS (room status information), 19
room phones, 11
RVB (Reverse Battery) pulses
counting, 10
operation, 14

## S

selecting
Multiple Appearance DNs, 18
single DN, 16
setting room meters, 16
SL-1 telephones, 15

## T

trunk access codes, 12
trunk cards
*See also* QPC219 CO/FX/WATS trunk card; QPC295 CO/FX/WATS/trunk card; QPC330 trunk card; QPC331 trunk card
trunk circuit packs, 13
trunk-to-trunk calls, 12
TTY, 19

Meridian 1 and Succession Communication Server for Enterprise 1000

# Message Registration

## Description and Operation

Copyright © 1990–2002 Nortel Networks
All Rights Reserved
Information is subject to change without notice. Nortel Networks reserves the right to make changes in design or components as progress in engineering and manufacturing may warrant. This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC rules, and the radio interference regulations of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.
SL-1, Meridian 1, and Succession are trademarks of Nortel Networks.
Document number: 553-2701-101
Document release: Standard 5.00
Date: January 2002
Printed in Canada

NORTEL NETWORKS™